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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/709,366	04/29/2004	Shiao-Shien Chen	6199400016	3365

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EXAMINER	
LOKE, STEVEN HO YIN	
ART UNIT	**PAPER NUMBER**
2811	

DATE MAILED: 03/11/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	10/709,366	CHEN	
	Examiner	Art Unit	
	Steven Loke	2811	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☐ Responsive to communication(s) filed on _____.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) 1-12 is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) 1,3-9 and 12 is/are rejected.

7)☒ Claim(s) 2,10 and 11 is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

1. The abstract of the disclosure is objected to because the phrase "the diffusion region" (line 7) has no antecedent basis. Correction is required.

2. The disclosure is objected to because of the following informalities: It is unclear why the reference numeral for the first well region and the second well region is 16 (page 10, lines 7-10). It is believed that the reference numeral for the first well region should be 14. It is unclear whether the first well region has a first conductive type (page 10, lines 18-19) or a second conductive type (page 10, lines 7-8). It is well known in the art that arsenic and phosphorous are n-type dopant. It is unclear why the specification discloses arsenic and phosphorous are P-type dopant (page 10, lines 19-20). It is well known in the art that boron is a p-type dopant. It is unclear why the specification discloses boron is a N-type dopant (page 10, line 23).

Appropriate correction is required.

3. Claims 4 and 11 are objected to because of the following informalities: Claim 4, line 3, the phrase "said dopant concentration" has no antecedent basis. Claim 11, line 5, the phrase "said first doped region of said second conductive type" has no antecedent basis. Appropriate correction is required.

4. Claims 4, 6 and 12 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

The specification (page 11, lines 21-22) and claim 1 (line 7) disclose the first well region has a first conductive type. It is unclear why claim 4 (lines 3-4) discloses the first well region has a second conductive type.

Claim 6, lines 3-4, the phrase "said each of said multiple metal layers coupled with adjacent said each of said multiple metal layers" is unclear whether it is being referred to "each of said multiple metal layers coupled with its adjacent metal layers".

Claim 12, lines 3-4, the phrase "each of said multiple metal layers coupled with adjacent each said multiple metal layers" is unclear whether it is being referred to "each of said multiple metal layers coupled with its adjacent metal layers".

5. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

6. Claims 1, 3, 5-9 and 12 are rejected under 35 U.S.C. 102(e) as being clearly anticipated by Ker et al.

In regards to claim 1, Ker et al. show all the elements of the claimed invention in figs. 2-6. It is a semiconductor device integrated a triple well structure and a bonding pad structure [210, 220, 230, 240, 250, 212, 222, 232, 242, 252], said semiconductor device integrated a triple well structure and a bonding pad structure comprising: a substrate [200] having a triple well structure therein, said triple well structure comprising a doped region (an upper portion of region [204]) of a conductive type (p-type), a first well region (a lower portion of region [204]) of a first conductive type (p-type) below said doped

region, and a second well region [202] of a second conductive type (n-type) below said first well region; and a bonding pad structure on said substrate.

In regards to claim 3, Ker et al. further disclose said first conductive type (p-type) is opposite to said second conductive type (n-type).

In regards to claim 5, Ker et al. further disclose said bonding pad structure comprises: a multiple metal layers [210, 220, 230, 240] alternating stacked with a multiple dielectric layers [212, 222, 232, 242, 252]; and a top metal layer [250] on said multiple metal layers.

In regards to claim 6, Ker et al. further disclose each of said multiple metal layers coupled with its adjacent metal layers by a plurality of via plugs [214, 224, 234, 244] in each of said multiple dielectric layers.

In regards to claim 7, Ker et al. further disclose a passivation layer [262] with a bonding pad opening [270] on said bonding pad structure.

In regards to claim 8, Ker et al. show all the elements of the claimed invention in figs. 2-6. It is a semiconductor device with a low capacitance bonding pad structure therein, said semiconductor device with a low capacitance bonding pad structure comprising: a substrate [200] having a doped region (an upper portion of region [204]) of a conductive type (p-type) therein; a first well region (a lower portion of region [204]) of a first conductive type (p-type) in said substrate, and below said doped region; a second well region [202] of a second conductive type (n-type) in said substrate, and below said doped region and said first well region; a multiple metal layers [210, 220, 230, 240] alternating with a multiple dielectric layers [212, 222, 232, 242, 252] on said substrate,

wherein said multiple metal layers are buried deeply in said multiple dielectric layers; a top metal layer [250] on said multiple metal layers; and a passivation layer [262] with an bonding pad opening [270] therein on said top metal layer.

In regards to claim 9, Ker et al. further disclose said first conductive type (p-type) is opposite to said second conductive type (n-type).

In regards to claim 12, Ker et al. further disclose each of said multiple metal layers coupled with its adjacent metal layers by a plurality of via plugs [214, 224, 234, 244] in each of said multiple dielectric layers.

7. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

8. Claims 1, 3 and 7 are rejected under 35 U.S.C. 102(b) as being clearly anticipated by Morishita et al.

In regards to claim 1, Morishita et al. show all the elements of the claimed invention in fig. 9. It is a semiconductor device integrated a triple well structure and a bonding pad structure [36], said semiconductor device integrated a triple well structure and a bonding pad structure comprising: a substrate [72] having a triple well structure therein, said triple well structure comprising a doped region (the n+ type region of transistor [96]) of a conductive type (n-type), a first well region [80] of a first conductive type (p-type) below said doped region, and a second well region [76] of a second conductive type (n-type) below said first well region; and a bonding pad structure [36] on said substrate.

In regards to claim 3, Morishita et al. further disclose said first conductive type (p-type) is opposite to said second conductive type (n-type).

In regards to claim 7, Morishita et al. inherently disclose a passivation layer (the layer formed adjacent and above layer [36]) with a bonding pad opening on said bonding pad structure.

9. Claims 2 and 10 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

10. Claim 4 would be allowable if rewritten to overcome the objection and the rejection(s) under 35 U.S.C. 112, 2nd paragraph, set forth in this Office action and to include all of the limitations of the base claim and any intervening claims.

11. Claim 11 would be allowable if rewritten to overcome the objection set forth in this Office action and to include all of the limitations of the base claim and any intervening claims.

12. The following is a statement of reasons for the indication of allowable subject matter: The first major difference in the claims not found in the prior art of record is a dopant concentration of said second well region of said second conductive type is higher than a dopant concentration of said first well region of said first conductive type. The second major difference in the claims not found in the prior art of record is a dopant concentration of said first well region of said first conductive type is higher than a dopant concentration of said doped region.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Steven Loke whose telephone number is (571) 272-1657. The examiner can normally be reached on 7:50 am to 5:20 pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Eddie Lee can be reached on (571) 272-1732. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

sl

March 6, 2005

Primary Examiner

Steven Loke